

## ABSTRACT

### SERIAL CONNECTED LOW-LOSS SYNCHRONOUSLY SWITCHABLE VOLTAGE CHOPPER

The invention relates to a buck converter comprising:

- a pair  $P_0$  of switches SB, SH in series and connected to an input terminal B of the converter by the switch SB,
- K other additional pairs  $P_1, P_2, \dots, P_i, \dots P_{K-1}, P_K$  of switches in series between another input terminal A and the switch SH of the pair  $P_0$ , with  $i = 1, 2, \dots, K-1, K$ , the two switches of the same additional pair  $P_i$  are connected in series via an energy recovery inductor  $L_{r_i}$ ;
- K input groups,  $Gin_1, Gin_2, \dots, Gin_i, \dots Gin_{K-1}, Gin_K$ , of  $Ni$  capacitors C each in series;
- K output groups,  $Gout_1, Gout_2, \dots, Gout_i, \dots Gout_{K-1}, Gout_K$ , of  $Mi$  capacitors C each in series.

The switches  $P_0$  and the K additional pairs are simultaneously controlled by first and second complementary control signals.

Applications: high-efficiency converters with low output voltages.

Figure: 2